



Fermilab

MINERvA Working Group Meeting

October 12 2005

1:00 – 2:30 PM

Snake Pit

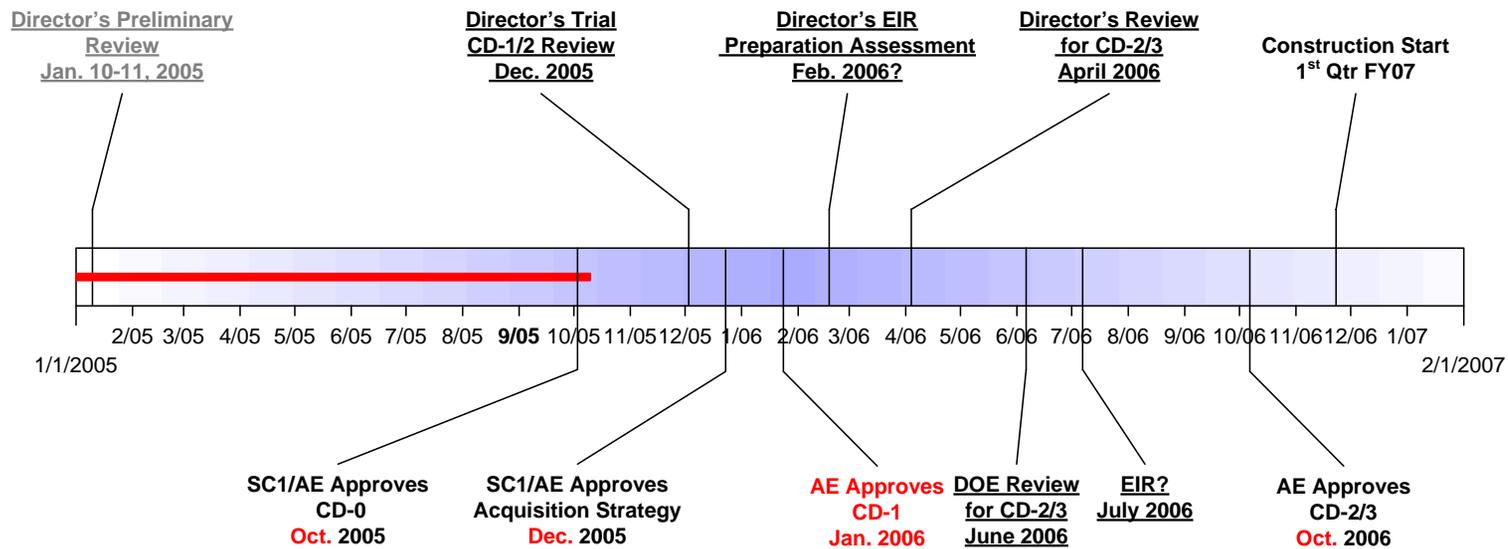
Agenda

- 1) Discuss MINERvA Timeline[Ed]
- 2) Tentatively plan the Director's review date [Ed and All]
- 3) Contractor Requirements Attachment 1 to DOE O 413.3 [Ed]
- 4) Configuration Management Talk/Discussion [Ed/All]
- 5) Planning & Budgeting for infrastructure items installation in March shutdown (drip ceiling, rack/platform modifications, moving electrical and the MINOS PS) [Nancy]
- 6) Discussion on how to handle University Labor associated with I&I tasks (WBS 11) which occur after the project is complete. [Nancy]
- 7) Status of development of MINERvA WBS and Resource Loaded Schedule [Debbie]
- 8) Present and discuss updated Draft of Project Management Plan - PMP [Dave and All]
- 9) Discuss status of drafting Project Execution Plan – PEP [Dave]
- 10) Acquisition Strategy Discussion [Nancy/Dave]
- 11) Status of Open Action Items from 06-October meeting:



DRAFT MINERvA Project Timeline for Critical Decisions & Reviews

Updated 15-Sep-05



Note:
Items marked in Red indicates change from prior version



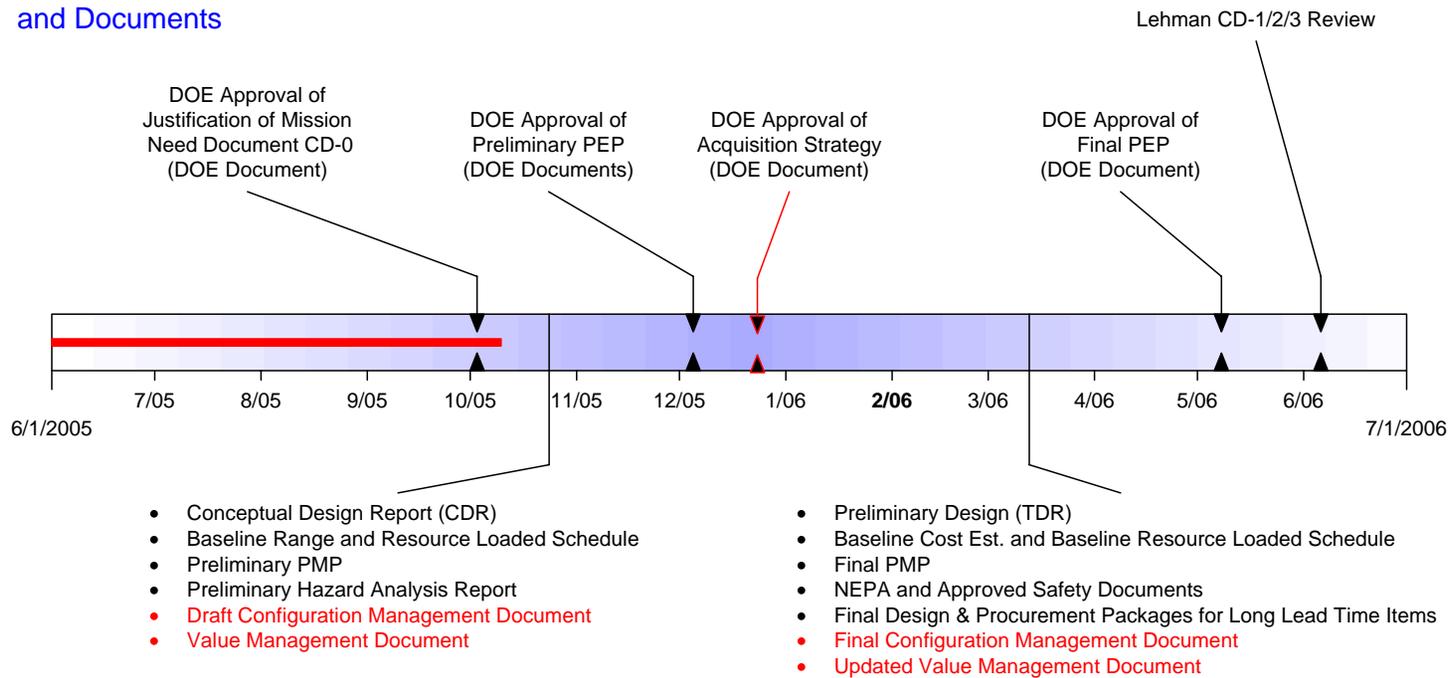
MINERvA Project

Draft Critical Design Prerequisites

Updated 15-Sep-05



Estimated Need by Dates for DOE Approvals and Documents



Target Completion Dates for MINERvA Documents

Note:
Items marked in **Red** indicates change from prior version

DOE 413.3 Attachment 1 - CONTRACTOR REQUIREMENTS DOCUMENT

1. Earned Value Management System (Not required if <\$20M)
2. Monthly Reports
3. Acquisition Plan
4. Technical performance analyses and corrective action plans
5. Critical path schedule and Project Master Schedule
6. Cost estimate; (Basis of Estimate)
7. Risk identification, quantification and mitigation
8. Integrated technical, cost, and schedule baseline
9. Configuration Management
10. Value Engineering
11. Quality Assurance Program
12. Integrated Safety Management System
13. Sustainable Building Design

DOE O 413.3 Attachment 1

CONTRACTOR REQUIREMENTS DOCUMENT

DOE O 413.3, PROJECT MANAGEMENT FOR THE ACQUISITION OF CAPITAL ASSETS

The Department of Energy (DOE) prime contractor's project management system must satisfy the following requirements.

1. The industry standard for project control systems described in American National Standards Institute (ANSI) EIA-748, *Earned Value Management Systems*, must be implemented on all projects with a total project cost (TPC) greater than \$20M for control of project performance during the project execution phase.
2. Cost and schedule **performance, milestone status, and financial status must be reported** to DOE on a monthly basis using DOE-approved work breakdown structure elements and data elements for all projects with a TPC greater than or equal to \$20M, except for time-and-materials contracts, firm fixed-priced contracts, or level-of-effort support contracts, for control of project performance during the project execution phase. The report must also include variance analyses and corrective action plans that integrate cost, schedule, and scope if variances exceed DOE-established reporting thresholds. Also reported will be analyses of cost and schedule trends, financial status, and baseline change control activity, including the allocation of management reserve, potential problems, and critical issues.

Qtrly

DOE O 413.3 Attachment 1 (cont.)

3. For project contracts that will be accomplished by M&O/M&I contractors, the contractor must have a written Acquisition Plan that is appropriate for the requirement and dollar value of each contract and consistent with the intent of the FAR. The Acquisition Plan for a project contract to be awarded by an M&O/M&I contractor is developed by a team of contractor employees including, as a minimum, the prospective Project Manager and Contract Negotiator. The Acquisition Plan will also be concurred in by the DOE Contracting Officer.
4. Technical performance analyses and corrective action plans must be reported to DOE for variances to the project baseline objectives resulting from design reviews, component and system tests, and simulations.
5. A critical path schedule and a project master schedule must be developed and maintained.
6. Cost estimating must be an integral part of cost baseline and life-cycle cost development and maintenance, budget request development, and estimates at completion.
7. Project technical, cost, and schedule risks must be identified, quantified, and mitigated (as appropriate). Risk mitigation strategies must be developed and implemented.
8. An integrated contractor technical, cost, and schedule baseline must be developed and maintained through the use of a contractor-level change control board.

DOE O 413.3 Attachment 1 (cont.)

9. A configuration management process must be established that controls changes to the physical configuration of project facilities, structures, systems, and components in compliance with ANSI/EIA-649, *National Consensus Standard for Configuration Management*. This process must also ensure that the configuration is in agreement with the performance objectives in the technical baseline.
10. A value engineering process must be used that identifies high-cost project activities in order to realize a maximum return on investment through the use of systems engineering trade-offs and functional analyses that identify alternate means of achieving the same function at a lower life-cycle cost.
11. A quality assurance program must be developed and implemented for the contract scope of work in compliance with DOE O 414.1A, QUALITY ASSURANCE, at the beginning of the project and maintained over the project life. This program must assign responsibilities and authority for quality, define policy and requirements, and provide for the performance and assessment of work.
12. An Integrated Safety Management system must be developed and implemented for the contract scope of work in compliance with DEAR 970-5204-2, Integration of Environmental, Safety and Health into Work Planning and Execution.
13. Sustainable building design principles must be applied to the siting, design, and construction of new facilities.

Key Aspects of Configuration Management

Configuration Management

- The purpose of Configuration Control, in addition to ensuring that proposed changes do not affect the fulfillment of stated project performance and function goals, is to ensure that any approved changes are incorporated and properly documented throughout the entire project. Key requirements requiring Configuration Control should be identified as early as possible, and a systematic change control procedure should be established. The IPT will identify configuration items and develop the necessary defining documentation. Typical documents include Acquisition Strategy, Project Execution Plan, Hazards Analysis documents, Risk Management Plan and Registry, System Requirements and/or Technical Equipment Requirements documents, and Baseline Change logs.

Excerpts from ANSI/EIA-649 on Configuration Management

The purpose and benefits of configuration management include the following:

- Product attributes are defined. *Provides measurable performance parameters. Both Buyer and Seller have a common basis for acquisition and use of the product.*
- Product configuration is documented and a known basis for making changes is established. *Decisions are based on correct, current information. Production repeatability is enhanced.*
- Products are labeled and correlated with their associated requirements, design and product information. *The applicable data (such as for procurement, design or servicing the product) is accessible, avoiding guesswork and trial and error.*
- Proposed changes are identified and evaluated for impact prior to making change decisions. *Downstream surprises are avoided. Cost and schedule savings are realized.*
- Change activity is managed using a defined process. *Costly errors of ad hoc, erratic change management are avoided.*
- Configuration information captured during the product definition, change management, product build, distribution, operation, and disposal processes, is organized for retrieval of key information and relationships, as needed. *Timely, accurate information avoids costly delays and product down time; ensures proper replacement and repair; and decreases maintenance costs.*
- Actual product configuration is verified against the required attributes. *Incorporation of changes to the product is verified and recorded throughout the product life. A high level of confidence in the product information is established.*

Table 1— Phases of a Product’s Life Cycle

Phases	Conception	Definition	Build	Distribution	Operation	Disposal
Aliases	Marketing Concept Study Research Exploration Pre-Development	Development Design Engineering Program Definition & Risk Reduction Engineering & Manufacturing Development Coding/Software Build ¹	Fabrication Production Construction Manufacturing	Sales Delivery Installation Fielding Deployment	Operational Maintenance Warranties Service Life Performance Operation & Support Repair	Removal From Service Disposition Unsupported
Characteristics	Need Opportunity Mission Analysis Trade-Offs Investigation Survey Functions Pre-Concept & Concept Definitions	System Definition Specification Architecture Preliminary Design Detailed Design Software Code & Test Manufacturing Planning Prototyping Testing Evaluation	Facility Construction Production Assembly Installation ¹ Inspection	Order Supply Stock Transport Acceptance Deployment Installation Setup	Use Utilization Operate Maintain Service Depreciate	Mothball Discard Deactivate Destroy Disassemble Scrap Recycle Disposition

Note: 1. Alias or characteristic may apply in more than one product phase.

CM Processes	Typical CM Activities	
<p>CM PLANNING & MANAGEMENT</p> <p><i>Selection, tailoring, guidance, assessment</i></p>	<ul style="list-style-type: none"> • Define application environment • Select tools, techniques and methods suitable for the environment • Plan implementation • Integrate CM within Enterprise defined processes 	<ul style="list-style-type: none"> • Prepare procedures • Perform training • Measure performance
<p>CONFIGURATION IDENTIFICATION</p> <p><i>Attributes, identifiers, baselines</i></p>	<ul style="list-style-type: none"> • Define product structure and select sub-elements to be managed • Assign unique identifiers • Select configuration document types & formats • Define product attributes, interfaces, details in configuration documentation • Conduct review and coordination of configuration documentation and if required, obtain customer review and approval • Establish release process; Release configuration documentation, authorizing use 	<ul style="list-style-type: none"> • Baseline configuration documentation for internal design control and, as applicable, for customer configuration change management • Assign serial and lot numbers, as necessary to differentiate individual units and groups of units, respectively • Ensure marking or labeling of products and documentation with applicable identifiers enabling correlation between the product, configuration documentation and associated data.
<p>CONFIGURATION CHANGE MGMT</p> <p><i>Manage changes</i></p>	<ul style="list-style-type: none"> • Identify need for change or variance • Document each request for change or variance and assign identifiers • Evaluate each change and variance, coordinating with affected areas of responsibility • Classify each request and establish effectivity 	<ul style="list-style-type: none"> • Disposition each request, obtaining required approvals • Plan change implementation • Implement change and verify re-established consistency of product, documentation, operation and maintenance information, services and training
<p>CONFIGURATION STATUS ACCOUNTING</p> <p><i>CM information & status</i></p>	<ul style="list-style-type: none"> • Identify and customize information requirements • Implement information system <ul style="list-style-type: none"> - Capture and report information about <ul style="list-style-type: none"> - Product configuration status - Configuration documentation - Current baselines - Historic baselines - Change requests - Change proposals 	<ul style="list-style-type: none"> - Change notices - Variances - Warranty data/history - Replacements by maintenance action <ul style="list-style-type: none"> - Configuration verification and audit status/action item closeout • Provide availability and retrievability of data consistent with needs of the various users
<p>CONFIGURATION VERIFICATION & AUDIT</p> <p><i>Verify performance & consistency</i></p>	<ul style="list-style-type: none"> • Verify product within normal course of process flow • Assure consistency of release information and production/modification information • Conduct formal audit when required • Review performance requirements, test plans, results, other evidence to determine product performs as specified, warranted & advertised 	<ul style="list-style-type: none"> • Perform physical inspection of product and design information; assure accuracy, consistency & conformance with acceptable practice • Record discrepancies; review to close out or determine action; record action items • Track action items to closure via status accounting
<p>CM OF DIGITAL DATA</p> <p><i>Assure data integrity</i></p>	<ul style="list-style-type: none"> • Apply identification rules to document representations and files • Use business rules based on data status for change management and archiving of data 	<ul style="list-style-type: none"> • Maintain data-product relationships • Apply disciplined version control • Assure accurate data transmittal • Provide controlled access

Note: Some activities are not applicable in every application environment

Figure 1 — Typical Configuration Management Activities

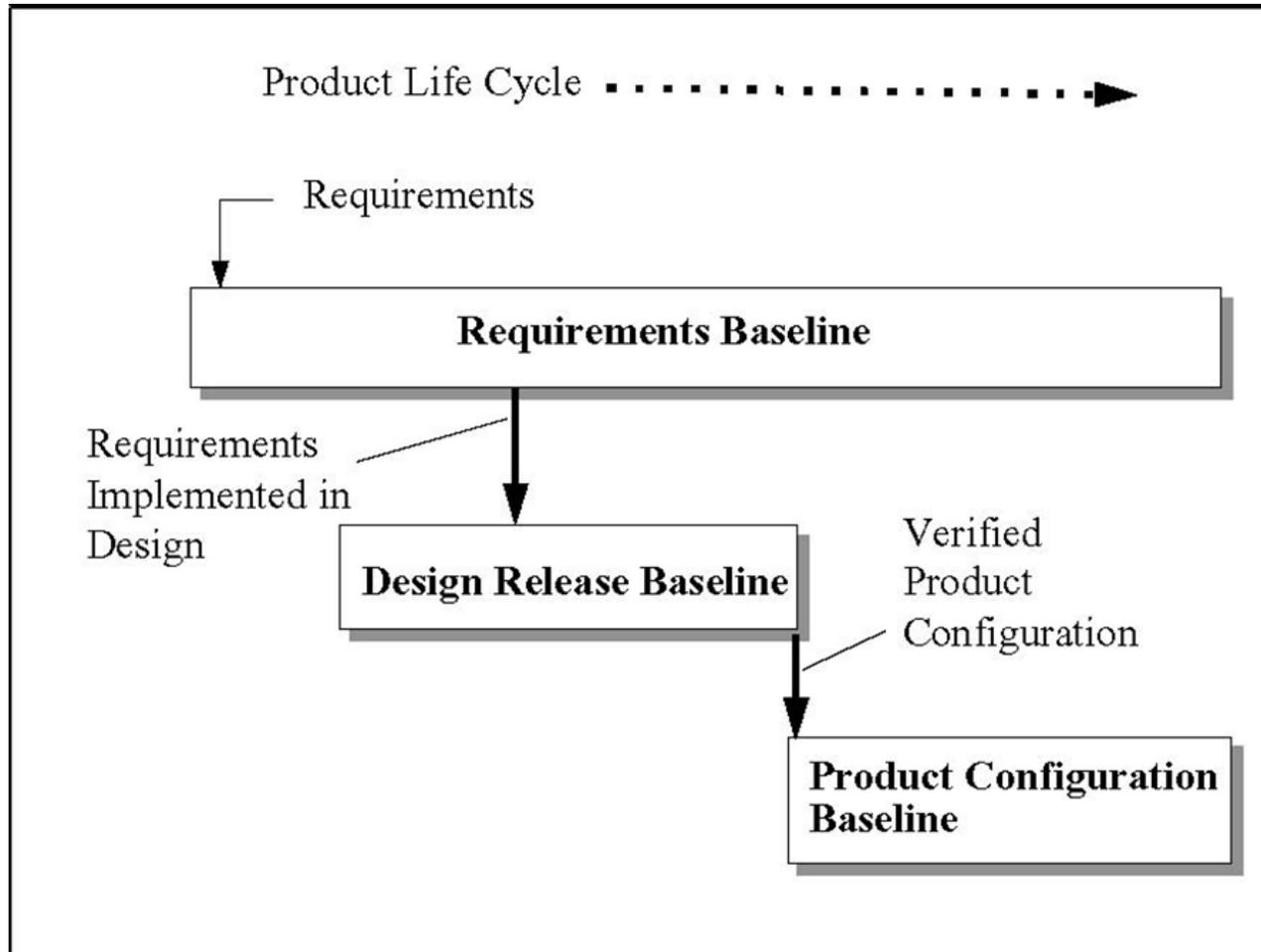


Figure 3 — Configuration Baselines

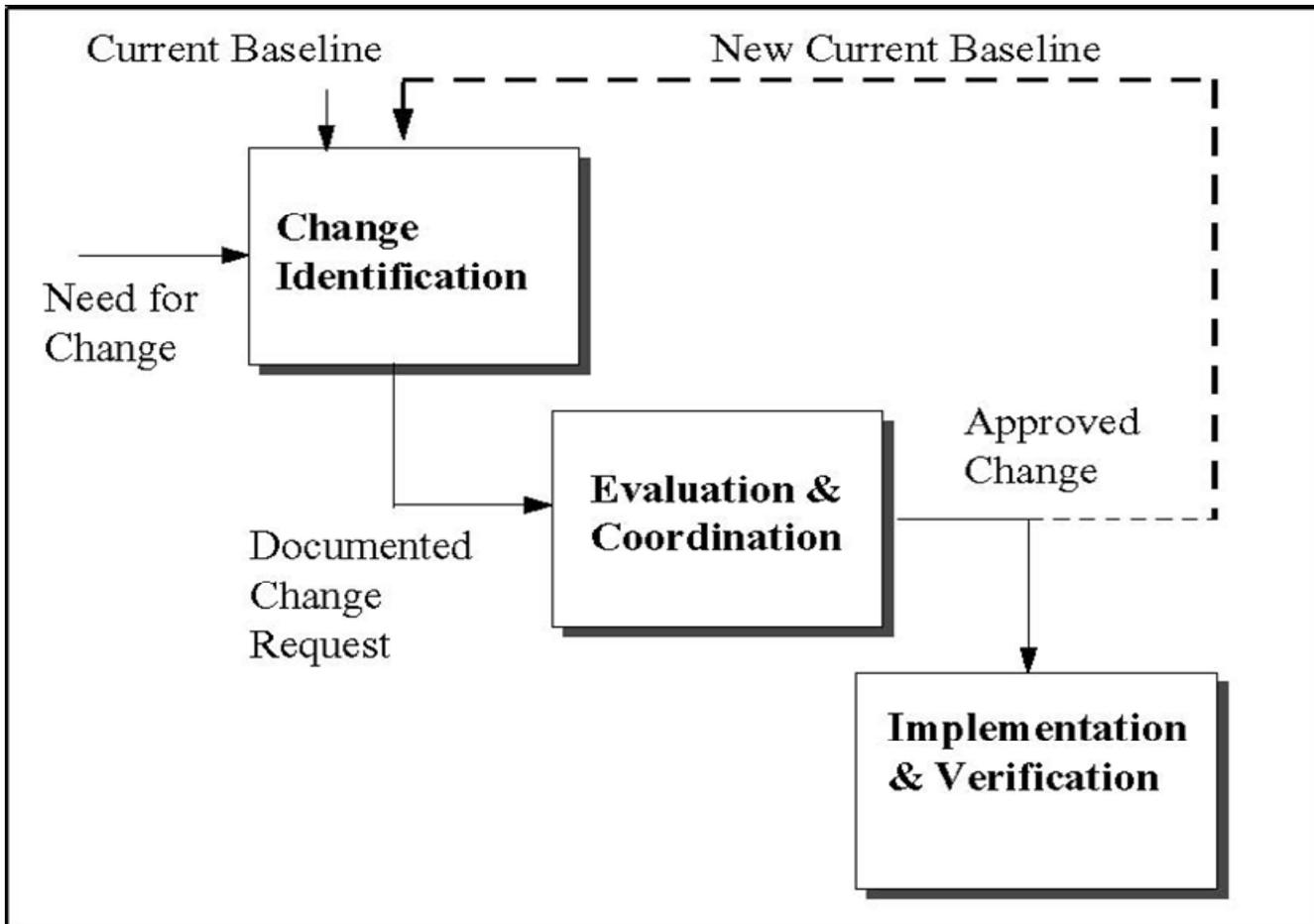


Figure 4 — Change Management Process Model

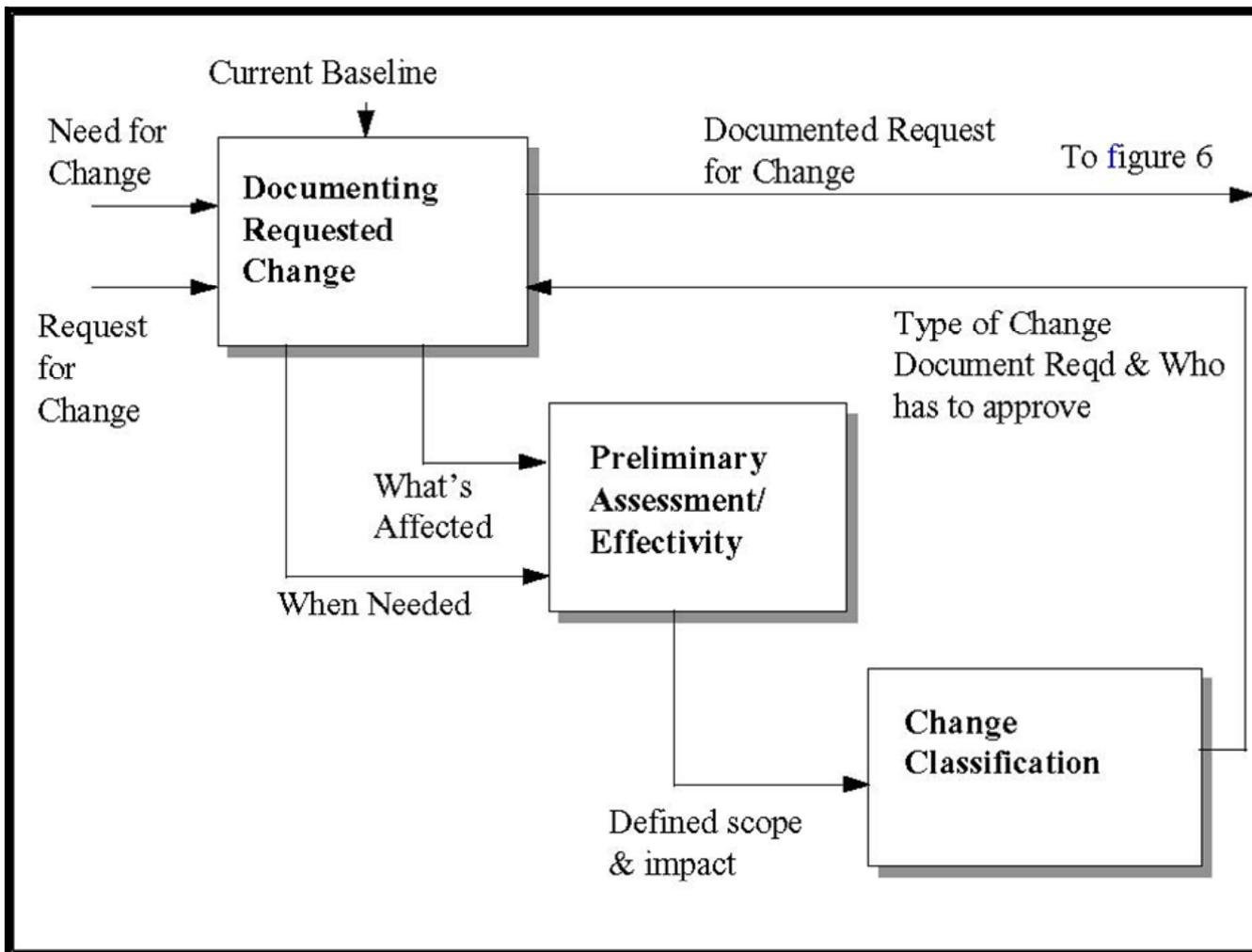


Figure 5 — Change Identification Process Model

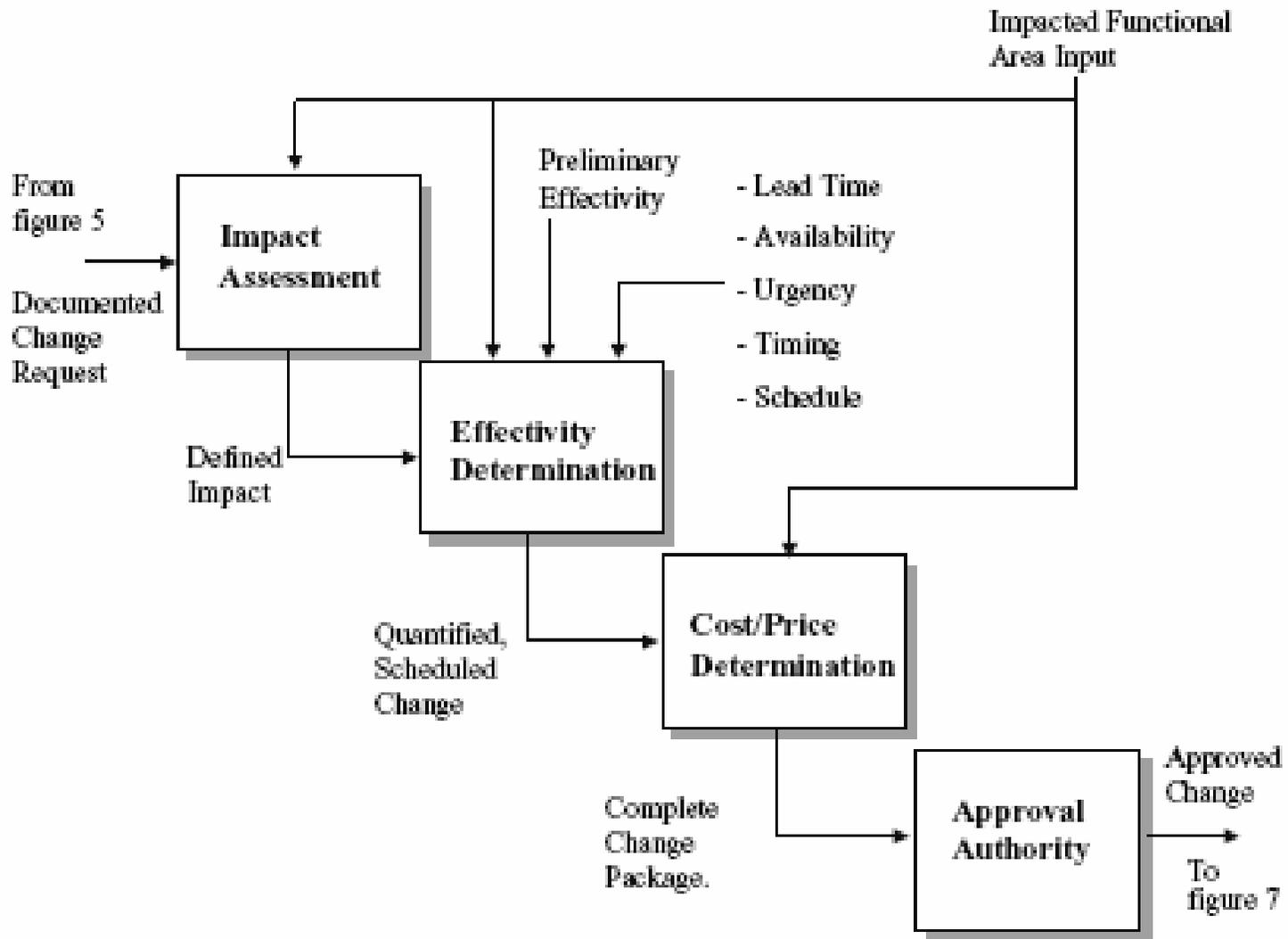


Figure 6 — Change Evaluation and Coordination Process Model

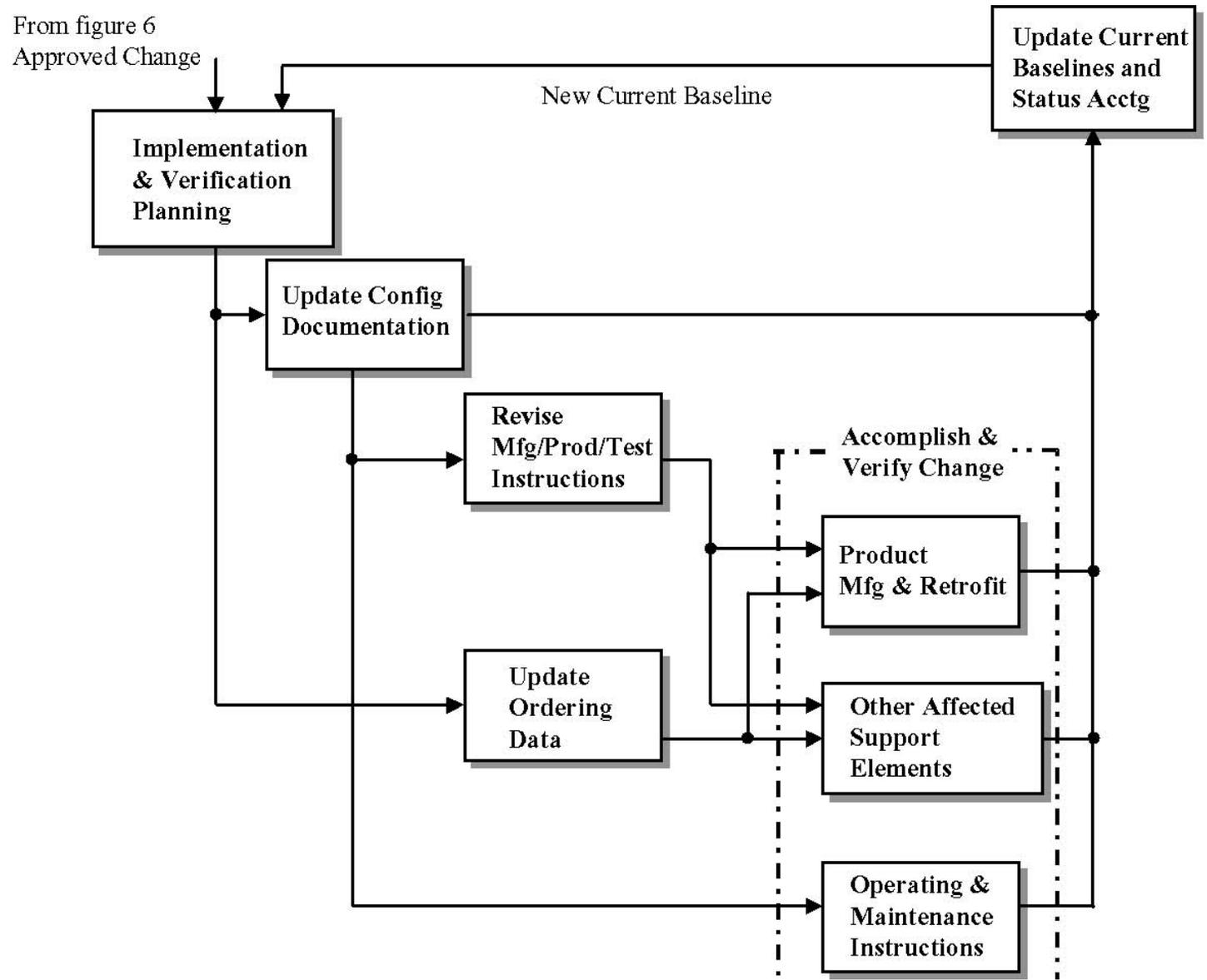


Table 5—Typical Status Accounting Information Across the Product Life Cycle

	CONCEPTION	DEFINITION	BUILD	DISTRIBUTION	OPERATION	DISPOSAL
Life cycle Phases Typical CSA Information (Select, where applicable and appropriate)						
Requirements documentation	•	•	•	•	•	•
Product structure information		•	•	•	•	•
Configuration documentation		•	•	•	•	•
Configuration documentation change notice		•	•	•	•	
Change request and proposal	•	•	•	•	•	
Engineering change effectivity		•	•	•	•	
Variance documentation		•	•	•	•	•
Verification and audit action item status		•	•	•	•	•
Event date entries		•	•	•	•	•
Product as-built record			•	•	•	
Product as-delivered record				•	•	
Product warranty information				•	•	•
Product as maintained, as modified					•	•
Limited use, shelf life restrictions, etc.			•	•	•	•
Product operation and maintenance information revision status					•	•
Product information change requests and change notices					•	•
On-line information access directory or index					•	•
Restrictions due to facility/product performance degradation					•	•
Product replacement information						•
Environmental impact information (where applicable)	•	•	•	•	•	•
Product or Parts salvage information						•

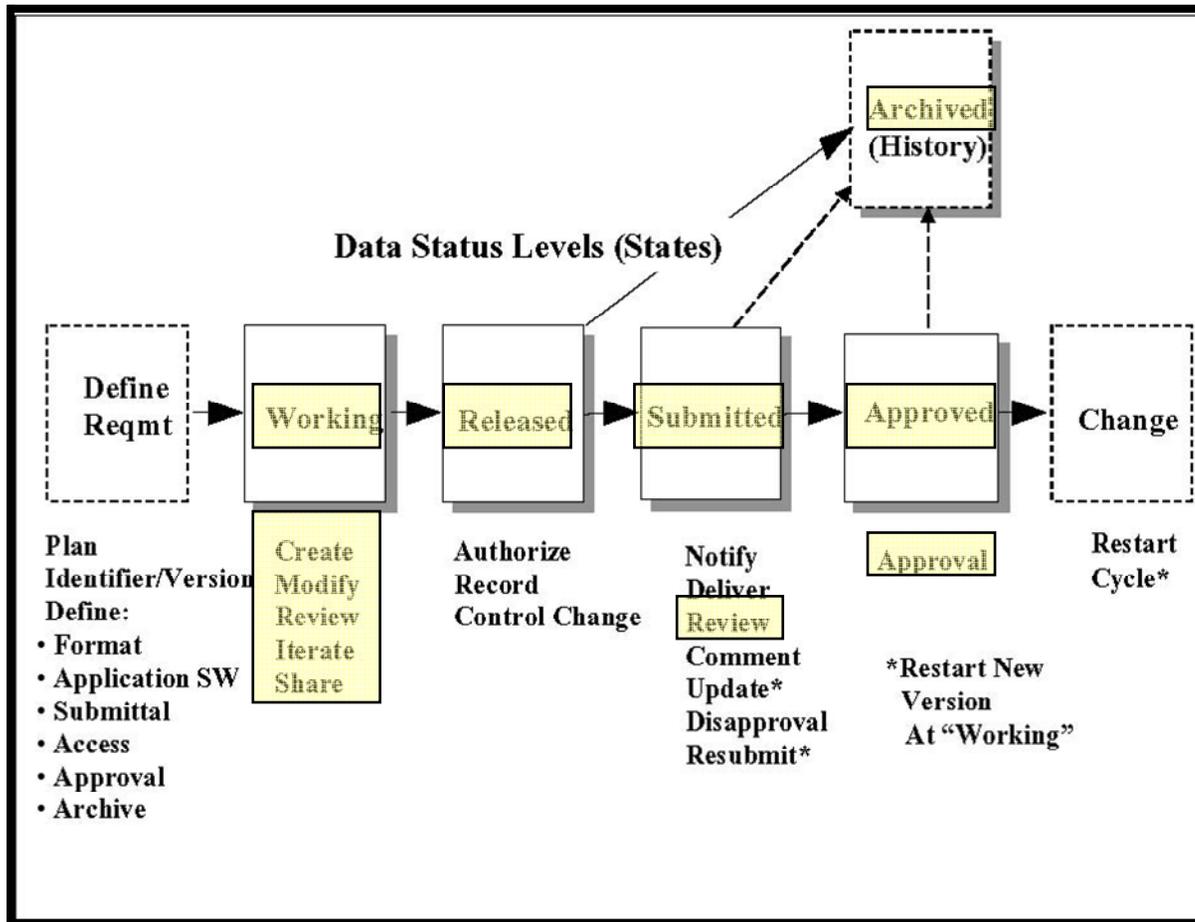


Figure 8 — Standard Data Life Cycle Model

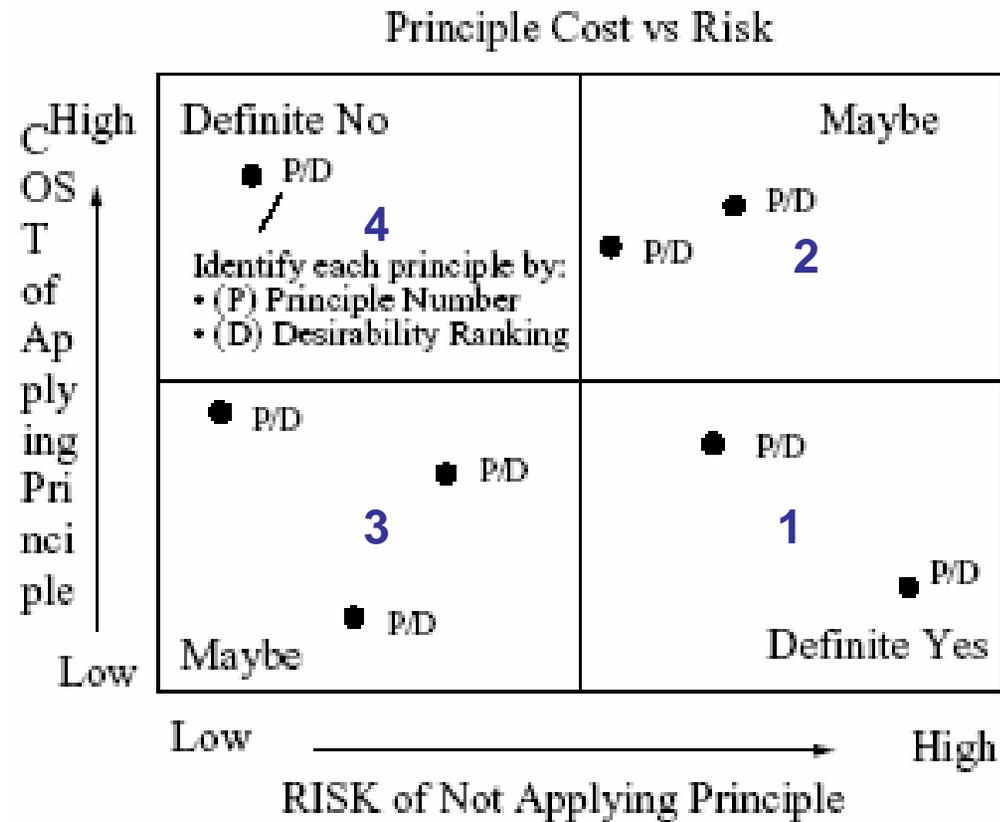


Figure B.1 — Affordability of Desirable CM Principles

Action Items

- a) Add to next meeting discussion of how handle University Labor associated with I&I tasks (WBS 11) which occur after the project is complete.
- b) Ed to discuss Configuration Management at a future meeting.
- c) Need a special meeting about required documentation for risk identification, quantification, and mitigation
- d) PM to talk to collaboration and Ed to talk to Mont about possible dates in Jan. vs. Dec (PM suggested Jan 11-13 for possible January date)
- e) Greg to talk to Procario about when get CD-0.
- f) PM will need to put a few different FY06 funding scenarios into the project schedule.
- g) Dave to discuss PMP/PEP status at next meeting.
- h) PM to discuss with Steve W. what type of cost reporting/reporting we need to do once we have CD-0.